AIR FORCE
WEAPONS LABORATORY
AIR FORCE SYSTEMS COMMAND
KIRTLAND AIR FORCE BASE
NEW MEXICO

SCIENCE
PHILOSOPHY
RELIGION

PROCEEDINGS
of the
Fourth Annual Symposium

12 - 14 September 1967

CONTENTS

1

FOREWORD

In September 1967 the Air Force Weapons Laboratory
and the Chaplain's Office of the Air Force Special Weapons
Center, Kirtland AFB, New Mexico, sponsored the fourth
symposium on Science, Philosophy and Religion. Five prominent
scholars presented papers and led discussions centered around
this year's theme: "Nature, Man, and God - The Military
Scientist's Relationship." Major General Ernest A. Pinson,
Commander, Office of Aerospace Research, served as Moderator.

From the earliest inception of the symposium, Brigadier
General David V. Miller, Air Force Special Weapons Center
Commander, Colonel David R Jones, Air Force Weapons Labora-
tory Director, and Lt Col Paul S. Drumheller, Kirtland AFB
Chaplain, enthusiastically endorsed the concept The tireless
efforts of Major Dean Ewing, symposium Chairman, made a
significant contribution to the success of this year's
symposium. In addition, the editor would like to acknowledge
the assistance of Dr. Jelle DeBoer and Major Dean Heimbach
in the preparation of these Proceedings.

The panelists' formal talks as presented here have been
reviewed by the speakers and they, therefore, have been
checked for content.

Lt Gerald P. McCarthy
EDITOR

ii

INTRODUCTION

COLONEL JONES

Ladies and Gentlemen. I want to welcome you to the Fourth Annual Symposium on Science, Philosophy, and Religion. I extend this welcome on behalf of both Brigadier General David Miller, Commander of the Air Force Special Weapons Center, who unfortunately is unable to be present, and myself, as Director of the Air Force Weapons Laboratory. This symposium is jointly sponsored by the Laboratory and the Center, and it enjoys the support of the Chief of Base Chaplains, Lt Colonel Drumheller.

Four years ago a group of young officers at the Weapons Laboratory expressed some concern over conflicts between their religious and ethical upbringing and their duties as military scientists. Out of this concern arose the idea of asking mature scientists, philosophers, and theologians who had perhaps been confronted with a similar challenge, to present the case for their moral or ethical decisions in everyday life and explain why their particular approach provided special satisfaction or guidance. This was the birth of the annual symposium on Science, Philosophy, and Religion here at Kirtland Air Force Base. Over the years many outstanding people have taken part, and this year's participants are of equal measure.

It is my very pleasant task at this time to introduce one of these to you, the gentleman who will act as moderator of the symposium. Major General Ernest Pinson is presently serving as Commander of the Office of Aerospace Research in Washington, D.C. He was born in Henderson, Kentucky and graduated from Depauw University in 1935 with a B.A. degree in Chemistry. He went on to take a PhD in Medical Physiology from the University of Rochester's School of Medicine in 1939. In 1948 he took a PhD in physics at the University of California at Berkeley.

It is particularly enjoyable to have General Pinson here today because we count him as an illustrious alumnus of the Laboratory. He served as Chief of the Biophysics Division in the Research Directorate from 1954 to 1957. That organization later was made a part of the Weapons Laboratory. This was during the heyday of atmospheric nuclear testing and the then Colonel Pinson headed a group

1

of radiobiologists who determined the dangers of flying
through radioactive clouds from nuclear detonations. They
used their own bodies to determine the depth dose rate,
using an instrumentation scheme I shall forego describing
because of the proximity of lunch. Since then, General Pinson
has occupied a succession of important positions, including
that of Director of the Cambridge Research Laboratory, before
achieving his present position as Commander of the Office of
Aerospace Research.

It gives me a great deal of pleasure to introduce to
you your moderator, Major General Ernest Pinson.

GENERAL PINSON

Thank you, Colonel Jones. Good afternoon ladies and
gentlemen. It is my great pleasure and privilege to welcome
our very distinguished participants in this year's symposium
and you ladies and gentlemen who have come to hear the dis-
cussions which will take place today and for the next two
days. Our symposium's theme refers to the military scientist's
relationship to nature, man, and God. So we will be addressing
problems affecting the relation between God and man - or,
talking about religion. And so I think we might well turn
the title of the conference around. I'm not suggesting this
be done in the future but it might be, I think, "Religion,
a discussion by scientists and philosophers," but certainly
I think it's a most important aspect of this conference.
It's assuming greater and greater importance in the lives of
all of us here today, because as science and technology
progresses, we are accorded more freedoms, more time in which
to think about the things that matter to us internally. In
times gone by, man has had to concern himself so much with
sustenance for his body, the maintenance of his health, and
he's had certainly less time to think about sustenance for
the soul than is the case today. As science and technology
progresses it affords him more freedom, more time to search
for these things that mean something to us within. And,
therefore, I feel it a very special privilege to be here, to
participate in these discussions with these illustrious
panels.

The function of a moderator is, as I see it, - one of
the functions, certainly, - is to listen, and so I shall
follow that principle here and I'm here to listen mostly to
the other panelists and sort of keep things moving and to
keep things moving on time. And so I will endeavor to do
just that, and I'm sure that with the help of the panelists,
we can keep things on time. I think the matter of keeping

2

things moving is going to be a very simple one. I suspect the big problem is going to be to keep it on time because there's going to be so much enthusiasm over what's being done instead.

The presentations are going to be made by the panelists today. There will not be an opportunity today, nor during the first hour tomorrow morning, for discussion of presentations from the floor. There may be some discussion this afternoon and early tomorrow morning among the panelists themselves. You, the audience, will get an opportunity to discuss these subjects with the individual panel members in the individual sessions that follow this afternoon's presentation and the first hour tomorrow morning. I would ask you this afternoon, as the presentations are made, if you'd wish, to write down some questions which you'd like to have the panel members discuss tomorrow morning.

3

PROFESSOR BOULDING'S TALK

GENERAL PINSON

It is my pleasure, at this time, to present the first
panelist - Professor Kenneth E. Boulding. He is a native
of Liverpool, England. He was - I won't mention his date
of birth, but he's obviously a great deal younger than I.
He was educated at the New College of Oxford, receiving a
B.A. degree in 1931, first-class honors. He has a master's
degree from New College at Oxford in 1939. He tells me he
first visited the United States as a graduate student in
1932, so he's had a long acquaintance with our country.
He's also been an American citizen since 1948. He has
many awards, the most notable of which are the John Bates
Clark medal of the American Economic Association and the
American Council of Learned Societies' prize for distin-
guished scholarship in the Humanities. He has, since 1949,
been Professor of Economics at the University of Michigan,
and he has just as of this Fall accepted a similar position
as Professor of Economics at the Institute of the Behavioral
Sciences at the University of Colorado at Boulder, Colorado;
and so he is going to be privileged to live in the high and
dry Rocky Mountain climate that I think so much of. My
suspicion is that he may become a native of this part of
the country after he stays out here for awhile. The subject
on which he will speak this afternoon is "Some Impacts of
Technology on Values." It is my pleasure to present to you
Professor Kenneth E. Boulding.

KENNETH E. BOULDING*

The hypothesis that the grammatical form of a language
affects the thought of its users, attributed usually to
Benjamin Whorf, may not have general validity but there is
at least something in the proposition that the subject-verb-
object structure of the typical sentence in Indo-Aryan
languages sets up a certain tendency for thinking of pro-
cesses as if they were things, a device which is sometimes
known by the impressive name of Reification. Thus, in
English we have to say "it is raining" or as in Lewis Carroll's
famous example "found it advisable," for processes which
really do not involve any "it" at all. The passage from

---

* Title of paper, "Values, Technology, and Divine
Legitimation."

4

<u>Alice's Adventures in Wonderland</u> is so significant that I can hardly refrain from quoting it in full.[1]

The word "values" is almost as bad as "it." Grammatically it is a noun and hence we expect it to be a thing. The search for a thing called a value however is likely to be fruitless, for the context refers not to a thing which can be observed, weighed and measured, but to a process, the process of valuation. This is a process which originates even in chemical substances and develops in complexity as we ascend the system-scale towards man. It is no accident that we use the term "valency" for that property of the elements which determines a choice of partners. Four Hydrogen atoms have a "value" for a carbon atom which is possessed neither by three nor by five. The amoeba unquestionably prefers food to a particle of dirt. It performs valuation as it performs choice. The phenomenon of choice is found in all levels of life and it dominates the behavior of man. Preference or choice, however, always implies valuation. Value, indeed, is only manifested in an act of choice. If you prefer A to B this means that A has a higher value. This principle is not disturbed by the fact that valuation can take place at many different levels. It is quite possible indeed for different and even contradictory systems of preferences to exist in the same individual at the same time, depending on the role which he is performing. As an individual, I might prefer A to B. As an American I might prefer B to A. As a human being I might again prefer A to B. Every role implies some system of valuation and as "each man in his life plays many parts" so each man may have many systems of valuation.

---

[1] <u>The Complete Works of Lewis Carroll</u>, Modern Library Edition, Random House, Inc., New York, p. 36.
...said the Mouse. "I proceed. 'Edwin and Morcar, the earls of Mercia and Northumbria, declared for him; and even Stigand, the patriotic archbishop of Canterbury, found it advisable...'"
"Found <u>what</u>?" said the Duck.
"Found <u>it</u>," the Mouse replied rather crossly: "of course you know what 'it' means."
"I know what 'it' means well enough, when I find a thing," said the Duck: "It's generally a frog, or a worm. The question is, what did the archbishop find?"
The Mouse did not notice this question, but hurriedly went on,...

Values, then, are simply systems of preference which will enable us to predict choice. An economist may express these patterns of preference by means of indifference, utility or preference functions, which simply means a general rule for ordering a set of elements which consists of objects of choice. Valuation is order or ranking. A value is simply a rank order. A "rational" ordering is supposed to conform to certain limitations such as transitivity. That is, if we prefer A to B and B to C then we should not then prefer C to A, although this quite often happens in real life. Even in football A beats B, B beats C, and C beats A. Economists distinguish between weak and strong orderings. In a strong ordering of any two elements in a set we can say which one is superior in rank. Weak orderings contain "brackets" where two or more elements of the set may be of equal rank. Economists and moral philosophers have a certain prejudice against weak orderings as suggesting apathy, weak mindedness, and vacillation. Nevertheless, it is probably only the existence of weak orderings, that is, easygoingness and apathy, which holds society together. A society in which everyone holds strong views about small differences soon falls apart.

Man is distinguished from all other forms of life by the fact that his value system is almost entirely learned, in the course of his life experience, from influx of information. The value systems of other forms of life are almost entirely built into the animal by its genetic code, that is, they are "instincts." The preferences of a bee, for instance, which are quite complicated, are not learned by experience but are built into the creature by genes. As we move up towards mammals we find more and more learning of values. A kitten has to learn a great many things about being a cat from his mother, including what to value and what not to value. The monkey even has to learn sex from his parents. Man enters the world with a small genetic value structure which includes a liking for milk and a disliking of loud noises and falling. But almost everything else has to be added to this in a long process of education. We have to learn to value hamburgers over raw fish, theism to atheism or the Star Spangled Banner to what W. S. Gilbert describes as "other local banners." The whole process of what is called "acculturation" by which a baby grows up to be a member of a particular society is very largely a process of learning of values.

The process of the learning of values is, of course, enormously complex and values are learned in many different ways. We learn them by precept from our parents, teachers, preachers, professors, and politicians. We learn values even more effectively from the rewards and punishments imposed by our peers. At a certain stage in the development of children there is a strong desire for conformity and the lowest value

6

is placed upon being "queer." Hence the values of peers are
rapidly adopted. We learn values also from our experiences
with the material world around us. We learn from experience
that certain foods disagree with us and we learn to avoid
them, and to put a low value on them. We learn from what I
sometimes call the "sour grapes principle" that if we cannot
get something we decide not to want it. This whole process
of learning of values is fundamentally dynamic process the
outcome of which is by no means easy to predict, in spite of
the strong tendency towards conformity with the group which
acts as a reference for the individual. The unpredictable
nature of the process arises because even though it is true
that values are learned by rewards and punishments, rewards
and punishments themselves are values. Reward, that is, is
something which we value highly and a punishment is something
which we value negatively. We have to learn what are rewards
and what are punishments, even though there are certain
physiological rewards and punishments such as hunger that
represent a physiological base line. The more complex the
value system becomes in the learning process, the more complex
the rewards and punishments become. A hunger striker imposes
hunger on himself because he has higher values than hunger.
The martyr has higher values even than personal survival.

The learning of values like many other learning processes
also seems to be subject to the phenomenon of "imprinting."
In the growth of the individual there occur certain critical
moments at which the particular information input which comes
along determines the whole value pattern of the future. Thus
the ethologist Lorenz has succeeded in persuading small
goslings that he was their mother and they attach all the
value to him that they would otherwise attach to the mother
goose. The phenomenon of imprinting is little recognized in
the human being but it almost certainly exists and may be
the principle origin both of sexual and nationalistic devia-
tions. Another phenomenon which seems to be present in the
dynamics of human value learning is "throwup" or overturn in
which a whole set of previous values is suddenly rejected in
favour of a new set. Religious conversion is a phenomenon of
this type. There are also political conversions and what might
be called cultural conversions, for instance, to the "hippies."
Too much indoctrination often backfires in this way. Incon-
sistencies within value complexes, producing what Festinger
calls "cognitive dissonance," may also produce these value
overturns. The phenomenon can sometimes be quite sudden like
the overturning of an iceberg. Sometimes the process may be
gradual but equally large in its effects. Sudden overturns
tend to take place when the identity of the individual is
strongly bound up with his value complex so that any threat

7

to this value complex is seen as a personal threat to his
identity. Hence he resists all change in the value complex
and until the inconsistencies and perhaps punishments which
it involves eventually cause complete rejection and a new
identity is created.

I now propose to consider very briefly the impact of
two large dynamic processes in society on the value learning
process as it may manifest itself in generations of succeeding
individuals. The first of these processes is technical change
which particularly dominates our own society. The second of
these processes is religious experience and its institutional
manifestations, which historically has played a role in the
dynamics of value systems just as important as technical change.

The process of technical change is surprisingly difficult
to define exactly although we all think we know what it is.
It is a long historical process which carries us from the
flint arrowhead to the guided missile, from the digging stick
and the primitive scythe to the tractor and the combine har-
vester, from the tepee to the skyscraper and, one should add,
from simple kinship to organizations such as the Soviet Union
and the United States Department of Defense. This is an
evolutionary process akin to, but in many ways different from,
biological evolution which has carried us from the amoeba to
man. It is a process of mutation and selection, leading
towards increasing complexity of organization of all kinds,
towards the increase of knowledge and towards the development
of more improbable structures containing more information.
Like all the evolutionary processes, it involves what I would
call the segregation of entropy and the building up of highly
improbable structures in one place at the cost of creating more
probable, that is, more chaotic structures elsewhere. Defined
in this way, technology seems almost to be identical with
social evolution itself. It is tempting, indeed, to regard
all social changes as essentially technological, that is, as
change in structures of organizations, both physical and
social. The distinction between material and social technology
is not of great importance. They go hand in hand in an inter-
woven process. Social invention and physical invention are
all part of the same process. The railroad and the corporation,
for instance, go hand in hand. Only the incomes tax has per-
mitted the exploration of space, and it was the national
megastate that split the atom.

Insofar as the process of technological change in general
affects the learning process of mankind it also affects the
process of learning of values. A growing child who is surround-
ed with the artifacts and the techniques of a primitive society

8

learns very different values from one growing up in the modern world. Technology affects values primarily by affecting the payoffs of difference choices among forms of action. A very good example of this is the impact of medical technology on family values and preferences about children. In a society in which most children die in infancy, high value tends to be set on early marriage and having many children simply because without this value system the society will probably not survive at all. The introduction of modern medical technology into such a society will inevitably force it towards disaster as the old values create an uncontrollable population increase, unless there is a radical readjustment of its preferences and attitudes about the family and about children. There is usually a lag in this readjustment which may indeed be long enough to cause disaster, but if the society survives disaster the values will have to change. The impact of the famine of 1846 upon Ireland is a good example of a demographic disaster producing a radical change in values.

Another good example of technological change producing a radical change in the value system is the introduction of gunpowder and firearms, which is perhaps the most important single factor which underlay the destruction of the complex set of values which constituted the feudal system. As long as the principle weapon was the long bow and the pike, the mediaeval knight and his castle made some sort of sense and provided some sort of payoff in terms of protection to the peasantry. The system was threatened even by the cross bow, and firearms rapidly destroyed it. The castle could be blown up, the city wall could be breached, and only an organization as large as the national state could offer any real protection. My personal view is that the development of the nuclear weapon has done for the existing national state precisely what firearms did for the feudal baron, and similar drastic rapid change in both values and in social organization is likely to follow. It is an ironic paradox that weapons development is likely to destroy the institution which has paid for it, namely the national state. Paradoxes of this kind have happened in history before.

In considering the impact of technology on values, we must also remember the reciprocal impact of values upon technology. We are contemplating a process here which is not of a simple linear character but which has innumerable feedback loops. Sometimes indeed it is a change in the value system, arising from other aspects of social dynamics which creates a n w technology. It is not merely that social invention and physical invention must go hand in hand. Social invention is often preceded by a prerequisite change in attitudes and preferences, often derived from religious sources. One does

9

not have to go all the way with Max Weber to recognize that the dynamic of the Reformation, which originated mainly in the religious system, created values and attitudes which made the technological revolution and even the rise of science possible. If we try to answer the question for instance why did the scientific revolution take place in Europe and not in China, which after all for two thousand years before 1600 had been the technological center of the world, the answer can only lie in the different value systems and methods of social organization. China had had an Unchinese Activities Committee for too long and by the 16th century was too Chinese, too successful, too well adjusted to be able to father the explosion of knowledge which took place in Europe, where the separation of the religious and the civil powers and the division into many kingdoms created a situation of flexibility and fluidity in which great changes were not strangled at birth.

This brings me to my final problem which is that of the impact of the dynamic of religious experience and organization on society in general and its value structures in particular. This is a problem which on the whole has been neglected by social scientists, yet which is historically of enormous importance. One might define the religious sector of the total social system much as one distinguishes the economic or any other sector. It can be fairly easily identified in terms of institutions such as churches, artifacts such as church buildings and furniture, books and literature, conversation and communications and personal activities such as public worship and private devotion. It can be defined also in terms of certain occupational specialists such as the clergy, monks and nuns and so on. This is a segment of society which has certain dynamic of its own, even though it is also profoundly influenced by other segments, as all segments of society influence each other. The dynamic process of any sector arises partly out of its own inner dynamic and partly out of its interaction with the other sectors of society. In the case of religion, the inner dynamic is quite strong, especially in the case of religions with sacred books, established rituals, and persisting patterns of organization and role structure. The survival capacity of religious organizations seems potentially, very high. Churches seem to be capable of longer life than either states or firms, and are among the oldest continuous social organizations.

Religion, like almost everything else connected with mankind, is learned. We certainly do not emerge with it from the womb. This would not preclude the possibility that man's genetic constitution predisposes him to religious experiences of some kind. In this respect, as in virtually all others,

10

the argument between nature and nurture gets us nowhere. The
fact is that historically man has had religious experience
and that this has taken innumerable forms. Historically he
has shown a persistent tendency to clothe his religious
experience with an elaborate structure of myth and ritual
from which he clearly derives rewards. The origins of
religion still is much in dispute. Fear of the unknown, the
sense of mystery in the vast forces of nature, of life and
of death, a desire to control nature through magic or through
words, as man early learned to control his fellow man, all
these undoubtedly have played a part. Religious beliefs,
experiences and organizations also are subject to evolutionary
change. Some religious mutations survive and some do not.
Mutation comes in the form of the prophet, the charismatic
individual whose experience creates a rhetoric which can
command the attention and allegiance of others. The dynamics
of religion indeed are in large part the dynamics of rhetoric
and of symbolic systems which are very little understood.

The impact of religion on the rest of society has been
enormous, mainly perhaps because religion, when it is success-
ful, is the most powerful instrument for the legitimation of
institutions, subordination and rank. It is certainly no
accident that all the earliest civilizations seem to have
been theocracies whether in Egypt, in Summaria, in Mohenjo-Daro,
in Shang China, or in Middle America. Cities cannot arise
until quite large numbers of people beyond the scope of the
kinship group or the face to face group can be organized and
made to accept what is originally a system of exploitation.
The prerequisite for the city is development of agriculture
which gives a surplus of food from the food producer. The
early cities however exported very little in the way of
commodities and hence if they were to be fed, the food pro-
ducer had to give them a fraction of his produce without
getting very much in return. The legitimation of this process
took a long time to develop. Man had agriculture thousands
of years before he had cities. Without the aid of religion
cities might never have developed at all. For in the first
instance, they had little to offer for the food that fed the
rulers and the workers that built and maintained the palaces,
the temples and the walls except spiritual goods, ritual
reassurances, promises of after-life and so on.

Without legitimation, no social structure can survive.
Legitimation indeed dominates both power and wealth. He who
loses legitimacy, loses everything. Legitimacy in this sense
has two aspects. One is internal legitimacy, by which is
meant "morale" or "nerve," that gives people the ability to
go on performing roles which otherwise have rather poor payoffs.

11

The other aspect is external legitimacy, that is, acceptance
on the part of others who are affected by a particular role.

God is the great legitimator. A man who believes he is
performing a divine role sanctioned by the Lord of the universe
and in conformity with ultimate truth will not have any problems
of morale or self-doubt. If he cin persuade others likewise
that his role is divinely ordained, he will find it easy to
obtain external acceptance. This unquestionably is why we
find the alliance of priest and king throughout history and
why even in our more secular age the British monarch is
crowned by the Archbishop and even the American president is
sworn in on the Bible, in spite of the fact that if he were
to follow its precepts he would probably soon find himself
impeached or at least put out of office. Even Napoleon
sought legitimacy by having himself crowned by the Pope.

This is not to say of course that the state or other
organizations in society have no legitimacy in themselves.
In the modern world indeed the state is probably the most
legitimate of all organizations, and the church has derived
legitimacy from the state by supporting it just as the state
has derived legitimacy from the church. Even in the socialist
states the Party performs many of the same functions as the
church. The fact that Communists deny the existence of God
does not mean that they do not believe in Him and in many
respects indeed it is legitimate to regard Communism as a
religion or at least as "faith." The Marxist eschatology
is parallel to, and a substitute for Christian eschatology,
and the materialist interpretation of history is a substitute
for Divine will. There are so many parallels indeed between
the Marxist system and the system of Christian theology that
Toynbee's suggestion that Marxism is a Christian heresy must
certainly be taken seriously.

The dynamic of the religious factor of man's life and
experience is extremely complex and we understand it very
imperfectly. Certainly in this area of social life, powers
of prediction are extremely small. The great "phyla" as
Pierre Teilhard de Chardin calls them such as Christianity,
Buddhism, Islam and Communism are spread very broad throughout
human history but their origins are shrouded in mystery, and
we have certainly no means of perceiving what might be the
origins of new religious phyla developing at the present time.
I have noted elsewhere that one can almost construct a litany
on the exclamation "who would have thought!" - for instance,
that an itinerant preacher in a minor province of the Roman
Empire at the time of Augustus would have set in motion the
train of events that would eventually have built enormous

12

cathedrals in countries then unknown, or who would have
thought that an equally itinerant camel driver in Arabia
a few centuries later would have set in motion a course
of events which would create a great civilization stretching
from Spain to the Philippines, or who would have thought
that funny old man with the beard in the British museum in
the middle of the nineteenth century would have had such an
enormous impact on the twentieth. For all we know therefore
the most significant event of the present decade is happening
in an obscure valley in some part of the world that never
reaches the newspapers.

What we do not really understand is the survival value
of religious mutations. These mutations occur all the time,
new prophets are always arising, most of them collect a few
followers around them then they drop into obscurity and the
world never hears of them again. What is it exactly that
makes the difference between the prophets that found the
great religions and those who fall into obscurity? We simply
do not know. The religious person of course will say that
the essential difference is divine revelation itself. This
might be called the proof of divinity by success. This is
a position incidentally which is quite consistent with the
method of science, which is usually, however, dealing with
much simpler systems. There are many basic similarities
however in the mutation and selection process by which
scientific ideas are propagated and the processes by which
religious ideas are propagated.

In conclusion I may raise the question, which will
undoubtedly be of interest to this audience, of the impact
of the dynamics both of technology and religion on the
legitimacy of national defense and the military establishment.
The question is of overwhelming importance because without
legitimacy the military establishment cannot survive. Its
legitimacy furthermore is threatened in the twentieth century
both by the dynamics of technology and by certain aspects
of the dynamics of the religious system. I have elsewhere
noted six sources of legitimacy.[2] 1. Positive payoffs
2. Negative payoffs 3. Age 4. Charisma 5. Ritual and
6. Association with other legitimacies. The positive payoffs

---

[2] "The Legitimation of the Market." Speech given at the
Midwest Economics Association, April 20, 1967.

13

for a system of unilateral defense depend very much, as I have pointed out in my book <u>Conflict and Defense</u>[3], on the range of the deadly missile. Roughly speaking any increase in the range of the deadly missile increases the minimum size of the defensively viable unit. The city state for instance is only really viable when deadly missiles are very short range. Even the invention of the mobile army by Alexander, this being considered a deadly missile in itself of considerable range, reduced the viability of the city state to the point where it has survived or reappeared only in times of great social disorganization, or it survived only as a curiosity like Hong Kong or Monaco. The whole long run dynamics of technology both material and social has been in the direction of increasing the minimum size of the viable unit and it now seems probable that minimum size of the viable unit is the total planet. Under these circumstances, the system of unilateral national defense simply breaks down. It cannot provide the security internal to the defended political unit which it is supposed to provide, and under these circumstances it cannot maintain its legitimacy in the long run.

The long run however may be quite a long way off and the second source of legitimacy, negative payoffs, is extremely important in maintaining the legitimacy of the military establishment. This is because of a dynamic phenomenon in the integrative system which I call the "sacrifice trap." Once we have made sacrifices for anything, that is, have received negative payoffs on balance, it becomes very hard for us to admit that the sacrifices were in vain, for this would be a threat to our identity. Consequently the making of sacrifices builds up an integrative relationship which justifies them. It is not only the blood of the martyrs that is the seed of the church; the blood of the soldiers is the seed of the sacred state. It is by sacrifice that things become sacred and the sacredness of the modern states is certainly connected with the blood sacrifices that have been made for it. I have suggested indeed that the only rational purpose of the present war in Vietnam from the point of view of the United States is to kill young Americans, this being necessary in order to refurbish the sacredness of the national state.

Negative payoffs however while they may increase legitimacy in the short run, cannot, I believe, establish it in the long run. Eventually the negative payoffs become too large and the

---

[3] Kenneth E. Boulding, <u>Conflict and Defense</u>. New York: Harper & Row, 1963.

14

whole structure of legitimacy of the system which demands
them collapses. We have seen many examples of this in the
course of history. One need only mention the collapse of
the legitimacy of monarchy beginning three or four hundred
years ago and the collapse of legitimacy of empire in the
twentieth century. An institution first says "ask not what
I can do for you only what you can do for me" and this often
produces a warm and generous response. The temptation
however is for the institution to ask too much and then
eventually somebody "asks" and the whole institution collapses.
I have suggested that we may be close to this point in the
case of the military establishment and the military state,
the negative payoffs of which are now enormous. The world
system of unilateral national defense now costs about one
hundred forty billion dollars a year and what we buy with
this is a positive probability of almost total disaster.

From the point of view of the long run dynamics of
religion, the future prospects for the legitimacy of national
defense as a social institution do not look much better. If
one can perceive any long run trend in the development of
religion it is towards universality and towards universal
integration. The more developed the religion, the more
universal its God and the less anybody can be excluded from
the circle of concern and brotherhood. The purely tribal
gods, even the purely national gods, either must be trans-
formed into universal deities or they die out. Jehovah,
whose songs could not be sung in a strange land, becomes
the universal and even nameless "Lord" of Isaiah and Jesus.
Buddhism similarly represents a transition from the local and
tribal gods of India to a universal semi-atheism. Islam
similarly represents a transition from the tribal gods of
Arabia to the universal Allah. Tribal gods survive insofar
as the tribes themselves live on and universal religions are
continually falling back into tribalism. Nevertheless, the
pressure for universality is constantly at work and the
tribal gods get slowly and surely delegitimized.

A movement can also be detected in the long run dynamics
of religion, away from the legitimation of violence through,
for instance, war gods, towards increasing stress on non-
violence and on universal brotherhood. This movement is
unfriendly to the concept of the enemy on which the whole
principle of national defense rests. It is not surprising
therefore to find that even in our society the church is
virtually the only agency which presents a serious political
challenge to the ideology of national defense, even though
in its most extreme form this challenge may come only from
a few sectarians. One finds the same phenomenon oddly enough

15

even in the socialist countries where the curiously ambiguous
character of the peace movement arises because its dynamic
comes mainly from what might be called the religious aspect
of the party, whereas the alliance of the party with the national
state creates a kind of establishment which is part of the
system of national defense and which hence is in practice apt
to sabotage the peace movement of the more pure ideologists.

It is not unfair to conclude therefore that defense
establishments everywhere face a long run crisis of legitimacy
from which their threat capability cannot save them, for
threats alone cannot create legitimacy. The truth is sometimes
they do and sometimes they do not and when they do not, they
are worse than powerless, for they destroy the threatener
himself.

It may be therefore that military establi hments every-
where could study with benefit the history of institutions
such as monarchy and empire, and even the chruch, which have
survived by abandoning the use of threat in the interest of
retaining their legitimacy.

GENERAL PINSON

Thank you very much, Professor Boulding, for your
presentation. I'm sure that this presentation has stimulated
ample thought for discussion subsequently, today, tomorrow,
and the next day.

DR. RHOADES' TALK

GENERAL PINSON

The next speaker on our program is Dr. Dan D. Rhoades. He is also a very young man; 4 years younger that myself - having been born in 1934 in South Bend, Indiana. He comes from the same part of the country that I came from. He was educated at Indiana Central College, Indianapolis, Indiana. He has a B.A. degree from that college summa cum laude - 1956. He has a B.D. degree from Yale Divinity School - 1959. He has an M.A. degree from Yale University - 1960, and a Ph.D. degree from Yale University - 1963. He is presently Associate Professor of Christian Ethics at the Iliff School of Theology in Denver. He has been at that institution since 1962. He is a member of a great number of Honor Societies, I'll mention a few of them: Who's Who in American Colleges and Universities, Sigma Zeta, Danforth Fellow, Society for Religion and Higher Education, Society for Christian Social Ethics (he is a member of the board of that society), and American Association of University Professors. He is the chairman of the Social Service department of the Area Council of Scientists in Denver. He is a member of the board of the Denver Area Council of Scientists. The subject of his talk, as I understand it, will be "Context and Structure in Moral Decision-Making."

DAN D. RHOADES*

One is fortunate to live in a nation where a symposium of this nature can take place in this setting under governmental auspices. That is especially true since there is a close relationship between the issues to which this symposium is addressed and the moral, political, and military debate which so deeply divides the people of our nation at this time. It is gratifying to know that these issues are open to discussion on a military base, and I thank you for the opportunity to participate in that discussion.

In the brief time that has been allotted I will not try to present a formal paper. Instead, I will try to set the stage for the small group discussions in which I will be participating by providing some rather elementary tools and suggesting one method of approach to the basic issues of

---

* Title of paper, "The Structure of Moral Action."

17

this symposium. During our tour of the base, I especially appreciated those young scientists who could explain what was going on in ways that a novice could understand. I will try to return that favor.

My original presentation was entitled, "Context and Structure in Moral Decision-making." I intended to discuss not only the concrete structure of moral action, but the context of faith and philosophical assumptions which surround it. Then I was told that I could speak for fifteen to twenty minutes. Since I am more comfortable with an analytic and inductive approach, and I was sure that you would be too, I have decided to limit myself to the first half of that presentation. Perhaps it will help to clarify the manner in which scientific, philosophical and religious considerations come into play in a concrete moral decision-making process.

Now that Dr. Boulding has explained so well a relational theory of value very similar to my own, I am more content with my decision. But I would like to comment briefly on these more theoretical issues before beginning my presentation. A relational approach to value denies that it is a thing or object. It asserts that value always involves both a valuer and a valued object, and since value is not really a thing it cannot be located in either. However, this denies that value is entirely the function of preference, as an economist's approach might seem to suggest. For example, one may prefer cigarettes, even though they are harmful in relationship to his physiological make-up. Also, while acknowledging the importance of preferences, I would insist upon the distinction between simple preferences and more complex and fundamental attitudes. The latter act like centers on magnetic attraction and repulsion in an electromagnetic field, so that they tend to create certain configurations of preference. These funda- mental attitudes are analogous to what has traditionally been called faith. They are the valences which tend to shape our perceptions as well as our choices, and they have a special importance in shaping our "life-style." One would scarcely quibble about a simple preference for chocolate over straw- berry, but he may risk his life to maintain his life-style. To seriously question the latter is to threaten his very identity.

Nor whould all this be taken as an easy justification or legitimation of something analogous to religious faith. For we are all forced to make judgments about how a specific faith or life-style stands up under threat. Is it capable of an honest, healthy and open confrontation, or does it lead

18

to various forms of unhealthy anxiety-reaction. In other
words, both simple preferences and more complex and funda-
mental attitudes are in constant interaction with specific
factual beliefs and more general laws, theories, and
conceptual models. These latter components also act as
centers of attraction and repulsion in giving shape to the
field of interacting forces. That is the complex sort of
background which sets the scene for such human acts as
perception, analysis, systematic construction, decision
and evaluation. It tends to shape our perception and
structure our problems as well as provide recommendations
for their solution, though it seems a travesty to characterize
such a dynamic interaction of beliefs, preferences, attitudes,
laws, theories, concepts, models, tools and resources as an
"it." For "it" can only be so objectivized and systematized
from a macrocosmic perspective. That approach functions well
for certain purposes, but we have chosen a more microcosmic
perspective. Therefore, let us turn to a schematic analysis
of the structure of moral action in order to clarify the
diverse functions of some of the components of this field
more concretely, In this way we may see how science, philoso-
phy, and religion are actually integrated in moral decision-
making processes.

Moral action includes four elements. The first is the
actor or agent. Note that in some cases there may be a
collective subject, such as a board or agency. But, in any
case, the motivations and intentions of the "subject" are
distinguishable from its objectively observable behavior.
The latter is the second element of moral action which may
be called one's act. But this, in turn, must be distinguished
from its consequences, which are the third element. Finally,
there are the circumstances, those things which literally
"stand around" the act. For acts do not take place in a
vacuum, but are partly a re-action or response within a
structured field of forces.

The term action, as I will use it, includes the whole
process of agent, act, and consequences within a determinate
set of circumstances. As such, it specifically designates
only that behavior over which we have voluntary control, or
about which we may make decisions and choices.

The term moral is more ambiguous. Traditionally
speaking, its usage has been quite narrow, for the term
moral has been treated as the antonym of immoral. According
to this usage, a moral choice must involve either an act
which has been proscribed, or ruled out, or one which has
been prescribed as obligatory. But the situation is

19

radically changed if one contrasts moral decisions with
amoral ones. An amoral decision would be one for which
moral values and principles were irrelevant and therefore
need not be brought into the equation. Many decisions
and actions which we would hesitate to consider moral in
the first sense are classified as moral in the second
sense without hesitation. I will use the phrases moral
action and moral decision-making in the more inclusive
sense. It does have the practical advantage of sensitizing
one to the moral dimensions of decisions which may appear
to be amoral according to the narrower definition.

Now let me take a minute to put a schematism on the
board.
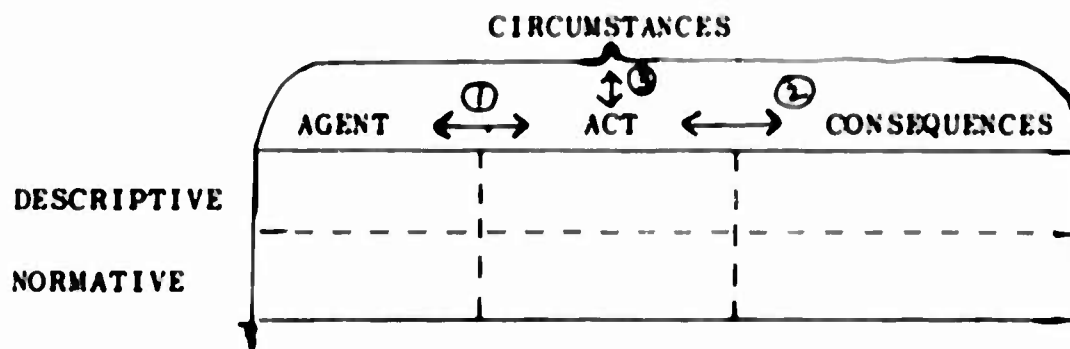
I mark the divisions between the elements of moral action
with broken lines to indicate that there is no single or clear
line of demarcation. For example, suppose you saw one man
shoot another. How would you describe his act? You could
say that he twitched his finger, and then treat the pulling
of the trigger and everything else that followed, in whatever
detail you chose to describe it, as a chain of consequences
that ensued from that act. But for the purposes of moral
evaluation, the relevant data must be contained in the act
description. So you might say that he shot the man. Or you
might elide a further consequence into the act description
and say that he killed the man. However, one may also be
too inclusive in his act description. Under the guise of
being positive, you might describe a case of abortion by
saying that the doctor saved a woman's life. However, by
eliding too many consequences into the act description,
and thereby hiding a relevant information, you would have
prejudged the evaluative question. Similar points can be
made about the lines of demarcation between the agent and
his act, and the act and its surrounding fields of cir-
circumstances.

20

Our schematism gets more complicated when the distinction between the descriptive and the prescriptive or normative levels is introduced. We again use a broken line to indicate that this necessary distinction is somewhat indefinite because it is drawn in a variety of ways. Note that this line extends right through the three elements of moral action. Thus, it distinguishes between a descriptive enterprise, such as a phychological analysis of the agent's dynamics, and a normative concern about his self-image and values. In the area of circumstances there are institutionalized and social patterns of expectation as well as normative principles and rules. Consider, for example, the plight of the used car salesman with his "let the buyer beware" on the one hand, and his normative principles about truth-telling on the other. Finally, there is a distinction between a descriptive interest in the immediate and probable consequences and a normative interest in specifying the ideal aims and long range goals one ought to pursue. One cannot understand, describe, or evaluate moral action without reference to both these levels. Yet the distinction remains.

So far our schematism has been helpful in locating the various kinds of considerations which enter into a moral decision. We will turn now to an attempt to use it as an analytic device for understanding and interpreting the several models and methods of ethics.

I begin with this schematism because I believe the methods of ethics are rooted in certain fundamental facts about human action. The first fact is that action is expressive. It reveals a great deal about the agent whether he likes it or not. That is summed up in the platitude that actions speak louder than words. They act as signs and bear messages. Of course, like all forms of communication, they may be used to deceive, but that in itself assumes a conscious recognition of the fact we are pointing to. Given this fact, it follows that one cannot even fully understand the meaning of an act, let alone evaluate it, without understanding the seedbed of motivations and intentions from which it emerged. That is true whether we are considering a corporate or an individual act, as is indicated by the emphasis on personal dynamics and various patterns of response in psychology, as well as the decision-making approach in politics. This first fact about moral action is internalized when one's actions are seen as an expression of his personal identity. If they are misinterpreted, I am misunderstood. The first type of method in ethics, which we will call the genetic type, focuses upon this connection between agent and act. It is designated by arrow number 1 in the schematism.

21

There are several subtypes of this approach which focus
on different data and use different procedures to create a
bridge between this data and the understanding and evaluation
of moral action. We will call the first type the indicative
to imperative method, for it begins with what purport to be
indicative or descriptive statements about man (or about
other collective agencies) and proceeds to draw imperatives
for the type of action which should be taken. In other words,
it begins with the assumption that there ought to be an
integrity between the character of the agent and his actions,
that the latter should be an honest authentic expression of
the former.

The model for this type of approach is the actor on the
stage. His acts and words tell us who he is, for in the
acts and words he is telling his own story. However, it is
also assumed that his character or role is already determined
before the play is staged. It is a given, although there is
plenty of room for creative interpretation of the part by
the actor, as well as by the audience. The evaluator is
more like the drama critic who must have certain tools for
his interpretation, but must also bring imagination and
sensitivity to his task. You will recognize, of course,
that I do not use this model as a scale model which attempts
to replicate every detail as an airplane model might.
Instead, I use it as a "disclosure model," which discloses
or places certain characteristics of moral action in a new
light. Its function is not to replicate at every point, but
to illuminate certain points.

Different forms of the genetic method in ethics focus
on different data. They also relate this data by different
procedures to the task of providing directives for action,
as well as for its evaluation. The types of data may be
distinguished according to the two levels of the schematism.
Some begin with psychological or physiological data and then
relate it by means of schemas of interpretation taken from
the appropriate disciplines to the question of appropriate
action. In fact, ethical systems have been based upon what
purport to be "factual" claims, such as the claim that man
is an egoist, or that he is a pleasure seeking animal.
Sigmund Freud and his disciples, as moralists, are also
good examples.

Others have begun with philosophical or theological
"descriptions" of the essential nature of man, rather than
with factual statements and claims. Thus, Plato began with
the definition of man as a rational animal, and proceeded
to draw the imperative "be rational!" The more specific

22

content of that imperative was derived from his conception
of the relationship between reason, emotion and bodily needs.
Jesus was using this method when he said that a good tree
brings forth good fruit, and those who have emphasized that
aspect of his teaching have been primarily concerned with
the transformation of the agent rather than the specification
of rules. St. Paul saw man's true nature in Jesus Christ.
We might paraphrase his view by saying, "You are in Christ"
(indicative), "now act like it!" (imperative). Other
Christian theologians have begun with what purport to be
indicative statements about God, drawn conclusions about
what man "really is" in relationship to Him (finite creature,
image of God, and sinner), and then derived imperatives for
action from that. In all these cases the bridge between
the indicative and imperative was created from interpretive
schema taken from the respective philosophy or theology.
They all begin with indicative statements about what man
truly is. They cultivate the internalization of this self-
image, and then emphasize a free and responsible creativity
in which the agent seeks to interpret his part in the drama
of life within this context.

Existentialism is another subtype of this genetic
approach. It reverses the order of priority between acts
and agents. According to this view, man becomes what he does,
for he determines what he will be by his decisions and acts.
The model for this view is a drama which is improvised in
the process of being staged. Just as the parts in such a
drama are not predetermined, so the morally significant facts
about man are not treated as "givens" by the existentialist.
His "being" is a becoming, or a project, for which he must
assume responsibility. Existence precedes essence. A lie
is not so much an expression of the fact that one is a liar,
but one becomes a liar by telling lies. This mode of thought
is less concerned to extol a list of virtues than it is to
bring individuals to a recognition of the ultimate signifi-
cance of their moral choices and acts. The fundamental
distinction is between those who take up the responsibility
for becoming subjects, and those who are content to be mere
consequents or objects. Here the data is not so much social-
psychological information as an introspective, phenomenological
analysis of one's own experience and subjectivity. And this
data is related to the question of action by means of inter-
pretive schema taken from existentialist philosophy.

Time is limited, so our treatment of other methods and
models must be more brief. The second fact about action is
that it invariably has consequences. Even inaction is
action by default. Insofar as knowledge is available, to

23

decide on a course of action involves an assumption of responsibility for a future. This fact is internalized when action is understood as a response toward alternative futures. The teleological type of method in ethics focuses upon this connection between acts and consequences (on arrow number two in the schematism).

Once again , there are several sub-types of this approach, the first of which we will call the utilitarian method. One model for this method is the producer or planner. Moral action is treated as a goal-directed activity. It is evaluated by its efficiency in producing a given product, or by its utility in bringing about the planned result. The basic moral problem is the determination of one's objectives with the aid of some set of value-standards or criteria. This provides the necessary context for approaching the question of appropriate action. Influence upon the future, or even limited control over it, is assumed.

The practical and realistic form of utilitarianism begins with a "factual" interest in probable consequences. It believes that ethics, like politics, is the art of the possible. "Ideal" solutions may be the worst enemy of the best possible, or least evil, result. Since action is under- stood as a means to an end, the "moral" problem of determining principles of right action tends to be reduced to a technical decision about strategy and tactics. But this does not necessarily mean that the calculus must be made from scratch on each new occasion. Some (who have been called act- utilitarians) argue that it does. Others (who have been called rule-utilitarians) argue that more general rules or principles of action may be validated on utilitarian grounds. Nor is this form of utilitarianism necessarily conservative. A hard-headed realistic appraisal of probably consequences might lead to an all out effort to revolutionize a whole system of institutionalized responses. For example, it could be argued that our whole "defense system" is more a vestigal remnant from the past than a realistic effort to cope honestly with the problem of alternative futures. It is by no means self-evident that a "peacenik" must be a utopian, or that realism requires the maintenance of a routinized pattern of defense.

The more realistic form of utilitarianism also insists that value standards and criteria themselves require an empirical warrant. Value is defined in relation to such referents as physiological, psychological, social and economic health and well-being, survival, and the realiza- tion of potential. Ethics gets its content more from the empirically oriented human sciences than from philosophical

24

and theological world-views. This inductive approach tends to correlate well with an option for specificity and specialization. The model is that of the professional expert, with its resultant compartmentalization of problems and emphasis upon mastery of technique. Value decisions are broken down and dealt with either as military, economic, political, social, legal, medical, or psychological problems.

Ideal utilitarianism represents the opposite end of the continuum. It begins with the logical independence of the ought from the is, or of values from facts, at least insofar as the latter are defined in terms of empirical procedures for verification. It tends to be more formal, deductive and metaphysical in its approach. The Good has ontological status. It may be known either by reason, or revelation, or feeling, or some combination of all these. In any case, the model here approaches that of the top executive who must make rather "high level" policy decisions. This means that the most distinctively ethical level of reasoning has to do with "ultimate aims." One ought to begin here. Only then can he reasonably take up questions about the implementation of general policy in more concrete administrative decisions. Also, the relation between ultimate aims and action is somewhat broader than a means-end, or causal connection. For example, the means is often treated as the end in process, or action is seen as a pre-inactment of the end. Nor does this approach see seeming failure as a rebuttal of its method. It tends to judge an actual state of affairs by its ideal standards, rather than conform its standards to the demands of an actual situation.

There are also those who stand more or less in the center of this continuum. The model here is that of the administrator who is neither a technical expert nor the top executive. He must begin in the middle of things and maintain the dialectic. He understands that the demands his problems place upon him have a way of ignoring the boundaries of academic disciplines and professional expertise. He must draw on expertise from below as well as take account of executive directives from above. But the complex manner in which values are intertwined with facts seems to require broader and more sophisticated ways of relating each to the other than either an inductive or deductive method and model allows.

Another sub-type of teleology tries to deal with man's impotence, or lack of control, with respect to the future. Here the future is either a given, or something which is coming to be quite apart from man's desires or actions.

25

This method is best seen in such forms as fatalism, apocalypticism, nihilism, and in some types of revolutionary doctrine. It begins with some rationale which establishes the inevitability of a given future. Then moral action is either dictated by, or a preparation for, that future. The data may vary from the "factual" to the occult, and the constructs which relate it to action may be just as diverse. But the method is the same. Action is shaped in response to a non-manipulable future.

The third basic fact about human action is designated by the double-headed arrow between act and circumstances. Four acts always take place within structured fields of circumstances which surround them. There are informal as well as institutionalized patterns of social expectation, with varying levels of enforcement and sanction. There are also normative principles and rules of action. These facts are internalized when we accept a role such as father, teacher, scientist, or soldier, as well as when we speak of appropriate, right, or obligatory acts. Again, acts cannot even be understood, let alone evaluated, apart from this context. The method of ethics which has focused upon these facts has traditionally been called a deontological type.

Time allows us to do little more than indicate several models which emphasize different data and organize it with a variety of theoretical constructs. One sub-type begins with an anthropological model. Man is seen as a pliable being who mav be shaped in manifold ways by his natural and human en ironments. It begins with factual data about informal and institutionalized patterns of social and cultural relativism, few would deny the bearing of such data on the perception and treatment of moral problems.

Others begin with a legal analogy. The law must be applied impartially to all. It is concerned primarily with acts and only secondarily with motivations and consequences. It seeks to define and distinguish the lawful and the unlawful. It deals with minimums rather than maximums, in that it seeks to provide a floor rather than to set a ceiling. It speaks only in negatives so as to allow greater freedom in the choice between positives. Here the question is not so much what people actually do as what the law formally requires. The model for this type of ethics is the lawyer or judge, who works within the context of a given body of law. Of course, this model is open to either an empirical or a metaphysical interpretation. The latter begins with the general criteria or principles which are used to distinguish right and wrong and to set the limits

26

of duty and obligation, though it may also include a more or
less deductive approach to casuistry. The former approach
sees the law as a receptacle of the wisdom of past decisions
(precedents). The rules and procedures have emerged from
the handling of concrete cases. Therefore, it tends to
emphasize the nature of the judicial process, rather than
the accepted principles dominant at any given point in time.
The latter must be taken seriously but they are by no means
beyond appeal.

Still another approach emphasizes the givenness of the
structured sets of circumstances less than man's responsibility
for re-shaping his environment. The model here is a political
one. It includes a responsibility for new legislation, as
well as a judicial function. It also recognizes the interplay
of power in the shaping of social institutions and environ-
ments, and seeks to develop procedures and processes for the
implementation of change as well as the conservation of
traditional values. Rather than taking order for granted, it
takes note of its inherent instability and sees its maintenance
and improvement as a moral task.

With the aid of our schematism, we have isolated several
types of method in ethics. Each begins with a limited range
of data, and develops a procedural bridge from it to the
interpretation and evaluation of moral action by appropriating
theoretical constructs from various academic disciplines.
Thus, the selection of a method involves a certain "weighing"
of the evidence as well as the choice of an organizational
schema. We have called attention to these facts by correlating
the various methods with certain "disclosure models." This
does not mean that other data is ignored, but only that it
is weighed and considered in a certain light. For example,
both social structures and the telos or end of human existence
may be seen as "rooted" in human nature. Or the legal inter-
pretation of deontology may lead one to focus upon the conflict
between desire and the sense of duty (conscience) in the area
of agency, as well as to interpret consequences as rewards
and punishments. This does not present too great a problem
so long as one does not get overcommitted to a single model
and method. But when that happens one prejudges moral problems,
and tends to overlook important ranges of data and illuminative
models for its organization and interpretation. One alternative
which stresses consistency and coherence, is to take an organic
model and develop an over-view which is still broad and
appropriate the concept of complementarity from physics and
to be flexible enough to be more inclusive. Another, which
stresses adequacy, is to treat all these methods and models
as tools designed for different jobs. Then our tool chest

27

may have to be big enough to make room for them all and the
primary test will be their usefulness in dealing with the
problem at hand. But at this point we have come full circle.
We are again raising the methodological problems which
inevitably emerge when a question is raised about our rationale
for using one procedure instead of another. That can only be
dealt with by inspecting that larger context of beliefs,
attitudes, etc. which we mentioned at the outset. But now,
at least, we may be able to ask it more clearly because we
can begin to see what operational differences it will make.
And by raising it in this functional way, perhaps even an
operationalist may be induced to give it its due.

DR. KURTZ'S TALK

GENERAL PINSON

The next speaker on our program is Dr. Paul Kurtz.
Dr. Kurtz is a native of Newark, New Jersey, born in 1925.
He was educated at New York University, earning a B.A. degree
there in 1948. He has a Master's degree and a Ph.D. from
Columbia University achieved in 1962. He is presently
Professor of Psychology of the State University of New York
at Buffalo. He served in World War II with the Army in the
European Theatre from 1944 to 1946. He is editor and co-
author of a number of publications and articles. He has
taught at Vassar College, Trinity College, Union College, and
the New School for Social Research. He is editor of The
Humanist, co-editor of the International Directory of
Philosophy and Philosophers, and director of the Editorial
Center, USA Bibliography of Philosophy, UNESCO. He is author
of Decision and the Condition of Man, American Philosophy
Before 1900, and American Philosophy in the Twentieth Century.
We certainly look forward to a most stimulating presentation
from Dr. Paul Kurtz, on "New Humanism."

PAUL KURTZ*

Thank you, General Pinson. I, too, shall use the podium.
Although I find your climate delightful, the oxygen level is
rather low for someone who first arrives. I, too, feel
limited by the time limit of twenty-five minutes, as
Dr. Rhoades has pointed out; any professor worth anything
takes fifty minutes to lecture, automatically. Twenty-five
minutes makes it almost impossible. I do want to make a
point before I begin my main address, and that is, that I
think that a symposium such as this is important, perhaps
not only for the Air Corps (I've been told not to use that
term), the Air Force, but I think also for the academic
community as for the intellectuals of this country. As you
know, in the last few years there has been considerable
tension between the academic community and the defense
establishment and I think it important, crucially important,
that dialogue be maintained. So, for the various people that
you have invited here, I think that perhaps they have learned
as much as perhaps the people who have attended the symposium.

---

* Title of paper, "The New Humanism."

The general topic for discussion is nature, man and God. Let me say right off that I can understand what it means to talk about nature and man, but that I find most God talk largely unintelligible.

The philosophical position that I represent, if labeled, is that of "scientific naturalism;" and the religious position is that of "humanism" and "ignosticism."

Scientific naturalism and humanism are, I believe, in a very real sense a dominant outlook of contemporary man, particularly among the intellectuals. One is often led to believe that the major religious faith in the United States is CAPREW, which like the Trinity, is made up of three parts, Catholic, Protestant, and Jew. I doubt this very much, for the apologists for CAPREW leave out scientific humanism, which I think is the philosophical and religious expression of the technological civilization which we have created, and which is often opposed to the premises of CAPREW.

What is scientific naturalism? It involves two key aspects: first, and foremost, a commitment to the method of science, and second, a generalized view of nature and man based upon the findings of the sciences.

The commitment to science is a commitment to an objective method of inquiry. Science is a way of behaving, more than it is a body of knowledge; and the scientific method, as broadly conceived, is the most reliable way of deriving and testing knowledge about nature and man. Scientific knowledge is continuous with common sense; it is not an esoteric art or mysterious cult available only to the high priests of technology. Rather it is an extension of the normal methods of reflective thinking and critical intelligence that all human beings employ to some extent in ordinary life and in the arts, crafts, and practice; though reflective thinking no doubt reaches its most developed form in the specialized sciences.

There are certain general characteristics that I think objective scientific thinking displays: First, the objective method requires that all claims to truth about the world (at least on the level of description and explanation) must be tested in some way by experience or verified by experiment. Second, all beliefs which claim to give us knowledge must be logically consistent, internally with itself, and externally with other well-tested beliefs. Third, although beliefs are based primarily upon experience and reason, they are judged in part by their convenience, i.e., by their role in inquiry

and in relation to the problems which they help to resolve. Fourth, beliefs are considered by the scientific naturalist to be <u>hypotheses</u>, open to revision. Fifth, they are thus fallible, tentative, probable--an element of skepticism is present. Sixth, all beliefs which are accepted must be capable of some public and repeatable tests by a community of inquirers. And seventh, the scientific method is itself not final, but is self-corrective, open to revision, as new techniques are discovered.

This first principle of scientific naturalism, the scientific method, is not simply an article of faith--as some critics have charged. Rather, it has developed gradually in civilization and found to be the most effective way of furthering the aims of inquiry. It is tested and justified by its effectiveness, by its results and consequences. No matter what one's ends or purposes may be, this method provides one with the means to fulfill his ends; and it best enables one to understand, control and modify the world. It has been used, as we know, with startling success in the natural and biological sciences, and most recently in the rapidly developing behavioral sciences.

The scientific revolution has had a drastic effect upon the traditional religious world view that had been inherited from the middle ages. First, the Copernican Revolution of the seventeenth century dislodged man and his planet from the center of the world, reducing it to a small and insignificant part of an enormously expanding universe. Second, the Darwinian Revolution of the nineteenth century destroyed the last vestiges of a teleological universe and showed that man was not a unique or special product of creation, but had evolved from lower forms of life by means of natural causes. And third, the Behavioral Revolution of the twentieth century naturalized mind, and demonstrated that, considered as a form of behavior, it is amenable to the same kind of rigorous scientific treatment as used in the explanation of other processes in nature.

The resulting world view of scientific naturalism, as grounded in the conclusions of the sciences, is fundamentally materialistic; namely, it considers matter and energy to be basic to the universe. Entities, processes, and events, as far as we can tell, seem to involve physical-chemical processes. But it is not a materialistic reductionism--and thus the term "naturalism" instead of "materialism"--for it allows for levels of being and different forms of organization. The universe that science uncovers is rich, involving plurality, diversity, contingency, and holism. In regard to man, the

31

scientific naturalist maintains that man is part of nature, a product of natural causes and conditions, and that there is no dualism between mind and body. This means that the behavior of men can best be described and explained by using all of the sciences, the physiological and biological, as well as the social and psychological, in order to treat the various dimensions of human experience.

What does the scientific revolution in methodology and outlook do to our traditional religious world view and to our moral values. I think that it has radically altered both. Medieval views of the universe and of God have been dealt hard body blows. Most of the classical justifications for belief in the existence of God have been seriously questioned and attacked by philosophers and scientists. The alleged proofs for the existence of God are shown to be illegitimate, the argument from miracles, or the appeals to mystical experience or faith invalid, the problem of evil unresolved. Generally in the history of the warfare between religion on the one hand and science or philosophy on the other, three options were stated: (a) I believe in God (theism); (b) I don't believe in God (atheism), or (c) I don't know whether or not God exists, though it is an open question (agnosticism). A view widely held today and far more extreme is that of ignosticism; namely, that any talk about a "transcendental God" is vacuous, being devoid of any kind of identifiable or interpretable meaning. The query, Does God exist? is <u>not</u> a genuine question, since there are no predicates or properties which we can relate to experience to understand what "God" means. Thus the ignostic rejects agnosticism or atheism for granting too much to the theists.

Now perhaps there are some senses of God talk which have ranges of meaning--that is a large order question, that I do not have time to enter into. What I am rejecting is the notion that the concept of a "transcendental God," or a "God above God," whether viewed in literal or metaphorical terms, has cognitive significance or import. What I am objecting to is an archaic religious conception of the universe, which is no longer meaningful for contemporary man. This is what the God is dead theologians are now admitting at long last, 70 years after Nietzsche proclaimed it at the turn of the century, and two centuries after the Enlightenment.

Now I hasten to add that although religious beliefs, in my view, are not to be construed primarily as making truth claims or offering knowledge about the universe, they do have important moral functions. They imply emotion, feeling, and moral commitment.

32

Religious beliefs takes on meaning, if it has any
meaning at all, largely in regard to moral and ethical values.
They are an expression of our "ultimate concerns" and deepest
aspirations. Under this interpretation, religious beliefs
are ideals rather than ideas or concepts. Thus to say that
one believes in God often means that one ought to love thy
fellow man, or be charitable or virtuous or support equality,
brotherhood or peace. Religion then is morality mixed with
feeling, commitment to ideal ends and values which stir
our loyalties. The religious person is the morally committed
one, dedicated to a serious purpose and way of life.

The real test of a religion or a religious belief lies
not in its truth claim, but in its moral practice. And let
me here make, it quite clear that I think that morality does
not need the kind of divine sanction or theistic support
which most of the orthodox religions have given it. Morality
and moral practice would be enhanced and better off if it were
treated as autonomous. Indeed, speaking as a non-theistic
religious humanist, it seems to me that twentieth century man
faces a crisis, and it is a crisis of responsibility about
our moral values.

That is, if God is truly dead for modern man, then man
is alive; and if so, the mankind must act with honesty and
courage, and turn its attention to the building of a new set
of moral values appropriate to the present context and age.
Moral decisions and moral principles are too important to be
left to the religious morality of a previous age. The theist
is often, I submit, irresponsible in looking outside of man
for succor and salvation or in clinging to the immortality
myth or the myth of divine judgment as a sanction for obliga-
tion, or as a basis for a moral code. The frightful problems
that we face today are such that unless we begin to be con-
cerned with mankind, we will be held accountable by future
generations for having failed to behave responsibly.

As a case in point: one of the most serious problems
that man faces today is the problem of the population explo-
sion, where there are far too many mouths to feed for the
meager food supply. The underdeveloped countries are unable
to move ahead fast enough economically because of the great
pressures on resources by increasing population growth. The
predictions for the year 2,000 are ominous; for we may be
moving, even in the advanced industrial societies, from an
economy of growth and abundance to one of scarcity. Yet
there are those who have opposed or continue to oppose con-
traceptive birth control and therapeutic abortions as
"sinful." On the contrary, from the standpoint of the

33

humanist, those theists who so talk seem to be defending a wicked and irresponsible position, not only from the standpoint of mankind as a whole and of the human race, but in terms of the untold suffering that such an absolute moral code has caused individual women, wed and unwed, who must bear children, even though the conditions under which children may be brought into the world are intolerable. The recent attempts to liberalize the abortion laws--in cases of rape, incest, birth defects--are long overdue, but they still do not go far enough.

This is only one illustration of the kind of moral dilemmas that we now face and that urgently need critical examination and solution. I think that many of the liberal churches, of course, do recognize the need. But the problems of morality in this rapidly changing world are such that they can only be resolved, if at all, by freeing ourselves entirely from the mythological illusions, and moral commandments of earlier social conditions, which no longer apply. There are many other moral dilemmas that need immediate inquiry: the need for world government, for an international police force, for a fully effective and workable nuclear test ban treaty, for economic interdependence, for the equitable distribution of the wealth between the have and have not nations, for racial harmony and opportunity, for an answer to the hypocrisies of modern life that the hippie finds and rejects, for the need for raising and enriching the creative quality of life instead of emphasizing the quest for quantitative production, and so on.

Morality needs to be reformed, and values re-evaluated. There are certain general considerations that I think would assist us in developing a sensitivity to new moral demands and aid us in reconstructing our values:

First, as I have suggested, man should recognize that he is responsible for himself, individually and socially. There are no early discoverable standards independently of human experience to which he can turn and no absolute model of human nature or divine law. What I am saying is that mankind has to "stop passing the buck." If mankind is to achieve full maturity, then it is time that it grew up and recognizes that it has no one else to blame for what it is but itself. There is no one to whom men can be held accountable save other men, and no one save humans who can assist in salvaging and redeeming the human condition.

Second, if our moral pronouncements are to be brought in harmony with the real conditions of modern life, then

34

our moral values should be based, as far as possible, on the findings of critical and objective intelligence, not upon custom and authority derived from the past. Our moral principles and ideals must be submitted to continuing critical inquiry and examination. Values, if they mean anything, are to be tested by how well they work out in practice. We need to know a great deal more about the origins of our values, the causes and conditions under which they emerge, and the consequences and effects of alternative moral beliefs. As a scientific naturalist I should say that science is or can be made relevant to our moral decisions. But to do so we need to judge and evaluate our principles and ideals in the light of an expanded awareness of facts in situations, we need more knowledge of man, the limits and potentialities of human action, and we need more knowledge of the alternative means and techniques available for resolving problems.

Third, since social conditions are continuously changing, our values are in need of constant revision; accordingly, they had best be treated as hypotheses, tentative, problematic, open to further change and modification. We tend to cling tenaciously to the old and comfortable habits of attitude and belief. We need the courage to admit our failures and errors and to create new attitudes and beliefs.

Fourth, although our values should accord with our critical reason and intelligence, they must be related to existing human experience, to the needs, interests, feelings and desires of men. Values cannot be imposed from without; they always grow from within the context of life experience-- the most that reason can do is modify and redirect, criticize and redevelop the existing experiences and attitudes of man, and to suggest new ways for enriched enjoyment and appreciation.

Fifth, since values are social and interpersonal in origin and function, they can only be developed by social dialogue and discussion, within a culture or society, and between cultures and societies. This means on the one hand, that if we are to transform our values, then we must be tolerant of and receptive to alternative moral viewpoints, and also that we must be prepared to reconstruct our own social system in the light of the new knowledge that we gain.

What I am saying then, is that morality needs to take humanity, man, as the center of concern, not a transcendental God; and that it needs to develop and use as far as possible the same critical intelligence and scientific objectivity about its values that it uses in regard to our other beliefs. It needs to develop a new humanism appropriate to the present

35

situation. Now I don't believe that all the problems that human
beings encounter can be easily resolved. Although many or most
problems can be resolved by the use of critical intelligence,
some moral dilemmas are such that we are left with only a choice
of lesser evils (as in the moral dilemma of Viet Nam), and some
problems seem beyond any kind of solution. The rational man
recognizes the limits of scientific reason, but he also knows of
its great potentialities and opportunities. He believes that of
all the other methods and instruments proposed, critical intelli-
gence, on balance, seems to provide us with the most hopeful
option. What should be the military scientists relation to nature
and to man: A recognition that critical reason and experience are
his best guides for understanding nature and man; and also that
they are still the best promise that we have for guiding our
moral deliberations and choices.

GENERAL PINSON

Thank you very much Dr. Kurtz for a most stimulating pre-
sentation. We now come to the point in the program where we
have a break, to give us all a recess from sitting. Let me
point out at this time that this would be an appropriate time
for the audience to sign up for the various discussion groups.
The papers for signing up are both on the counter at the right
and the rear of the room. These proceedings, the proceedings
of this symposium are to be published and if you would like to
have a copy, you have only to request one by signing also a
sheet that is provided in the same location as the sheet for
the discussion group.

FATHER ALBERT FRITSCH'S TALK

GENERAL PINSON

Ladies and gentlemen, the next speaker on our program is Father Albert Fritsch. Father Fritsch was born in Maysville, Kentucky, in 1933, and those of you who don't know where Maysville is, it is thirty (30) miles south of Paducah. For those of you who don't know where Paducah is, it's on the Ohio River just south of Illinois. He received the .... and those of you who don't know where Illinois is, I can't help you.

Father Fritsch received his BS degree from Xavier University of Cincinnati in 1955 and his MS degree in 1956. He entered the Jesuit Order the same year. He studied at Milford (Classics), West Baden, (Philosophy) and Bellarmine School of Theology. He received his PhD degree in organic chemistry from Fordham University in 1964. He has pursued post-Doctoral research at Dartmouth, at Fordham, and at Loyola of Chicago. During the past two years he has participated in a series of talks at various midwestern universities on the question of faith and science.

Father Fritsch has written several scientific articles and is currently completing a book entitled <u>Christ, and the Scientific Man</u>. Seems to me like a most remarkable career for such a very young man.

It is my great pleasure and privilege to introduce to you, Father Albert Fritsch.

ALBERT J. FRITSCH[*]

Thank you, fellow Kentuckian. He mislocated Maysville; he's talking about Mayfields, which is very close to it.

I would like to address fellow scientists and those who are engaged in the world in which and in the interests of scientific man. After the last speaker, all of my debating urges were to sort of rebut, but we'll have time tomorrow or the next day, because I think I hold many of the opposite views of what were stated.

---

[*] Title of paper, "A Catholic Notion of Technology."

37

Fellow scientists: I am not here to convince you in what I believe, but only that I believe what I believe. This alone is the force of Christian testimony; it is the witnessing of the Faith which personally moves me within my scientific activity.

I will speak of a Catholic notion of technology not to differentiate this from the basic tenets of Protestantism and Orthodoxy but to rather emphasize that my outlook is shaped from a traditionally Catholic theology. I use for my theological position the wealth of the sacraments, the Liturgy and the belief that all men are raised to the point of where they help in the redemption of the cosmos. I speak of a notion, to emphasize that technology is a given, a datum, not an apriori necessitated development of the human spirit. I am not giving a reason for technology but an understanding of the condition into which I was born. "A" rather than "the" notion stresses that there are several understandings of the world within the Christian tradition and also the Catholic confession, none of which have said the ultimate word.

Let us divide scientific man's activity into three major categories: the pure or theoretical science, the reflective science and the giant of them all, applied or technological science. The first group includes the physical, chemical and biological and the social scientific work of observing, describing and explaining the cosmos; it is a work undertaken more or less for its own sake. Here stress is put upon conditions and routes through which the world travelled in order to ultimately evolve its perfect product, man. Thus the furthering of knowledge of atomic and molecular reactivity, plant life or animal behavior is truly contributive to knowledge of man. Though working in the present we are learning about our cosmic past.

Reflective science (philosophy of science) includes the study of man's presence to himself, his scientific method and the biases and hidden factors which affect scientific man's knowing process.

Technology or applied science taken as a legitimate sceintific activity shifts the emphasis from origins and the present moment of understanding to future goals and ends, i.e, how and why must we build this bridge? How economical will it be? How will we control the traffic which will flow across it?

The scope of technological activity is so vast that it includes many persons of our industrial nation, and many fields from medicine to the military. With this future orientated activity goes a new found power and the necessity of control.

For Christian scientific man his attitude toward each of these three fields is somewhat different. The Christian holds that God has revealed himself in human history, to and through human being; first this was to the great people of Israel which was constituted a people of God through the Covenants with Abraham and Moses. This Revelation finally in the fullness of time took on the verbal expression of a person, the God-man, Jesus Christ. But the presence of Christ did not cease with his death but continues in the world today. Thus we say that all human activity in some way reveals the activity of Christ in his Cosmos. The pure scientific activity reveals man through a knowledge of origins. But what is revealed of man is revealed of Christ, the perfect man. Thus as Father Karl Rahner, has said, a Christology is an anthropology and likewise an anthropology is a Christology. Whatever can be said of Christ can truly be said of all men and whatever can be said of man is most certainly spoken of that perfect man, Christ. Thus the whole history of cosmic evolution is a history of Christ coming to be, of the perfect fulfillment of biological evolution.

Reflective science or the philosophy of science reveals the word of God in a quite different manner. Here a reflection on the how of our scientific activity casts a light on the how of all human knowing activity. So the theologian who uses the Revealed Word of God and comes to a better understanding of it will need to insert the particular terminology, insights and ways of knowing of all the branches of knowledge. For if God is truly everywhere, He is being revealed in each and every human activity and most especially his knowing activity. Reflective science tells us of the growth of consciousness in Christ himself while he was on earth and grew in age and wisdom. It is contributive to the science of theology.

Applied science and technological activity reveals God in a far different way than the other two areas. It is actual work, physically exerted to rebuild the earth and prepare this as a place for the Second Coming of Christ when there will be a new heaven and a new earth as both the Old and the New Testaments speak. It reveals Christ, Lord of the Universe, through his resurrection and is thus the sign of power. It invites

39

human <u>control</u> of his new-found power. Thus man reveals in the Pure Sciences the first coming of Christ and scientific man engaged in applied fields acknowledge the preparation needed for Christ's second coming. Though this thought might seem foreign to some from our Christian Tradition, it has strong theological foundations: The Bible never speaks of a New Heaven (as some type of spiritualistic kingdom) without the conjunction of the New Earth. The Scriptures gradually came to the notion of a resurrection or rising of the dead. This concept manifests the value and dignity of man's body, which is constituted by his physical universe. If we have a future body, we must have a future world in which the body is to be situated. Thus the resurrection of the body implies a resurrection of a new and glorified world. The promise of man's future life is a promise of the future of matter and man's world; the two cannot be separated. A note must be injected here as to the strain of pessimistic theology which runs through the Scriptures. These must be exegeted with all the tools at our disposal. It appears that in good times the emphasis was placed upon destruction of this present world (on the Day of Yahweh) so that the forgetful people might be reawakened to the need for change and activity. But when the times were bad as during the Exile the message of a loving, saving God came to the fore. This was an optimistic message of the joyful and glorious day of Yahweh. Apart from these special moods we find in the Scriptures a use of destructive fire along with agricultural imagery as a means of conveying the idea of new and somewhat violent change in the present world conditions. Furthermore, many of the specific references to a destroying force were immediate to the times the message was spoken or written. The fact of the Second Coming (the promise) is the only thing explicit; the manner and the time is up to God.

The first element which molds this Christian notion of technology is the stress on the power and importance of the Sacraments in our theological tradition. The sacraments are the signs and symbols (used in the widest sense of the modern philosophers) of God's continuing and infallible presence to his people. The man encounters Christ through a religious activity of the ecclesial body. Here man ceases to fear matter since God took on matter at the moment of the Incarnation. For no other religion has a God-man for its founder and its continuing protector; only Christianity has Christ, now present in his sacramental activity. Thus the Christian who is baptized with the lowly substance water touches the matter of the world and through it is transformed and becomes another Christ. Thus man receives a power which like all power must be controled and directed. The other sacraments open the possibility for this <u>control</u>.

40

On this subject the words of a famous Orthodox writer is
very apropos:

It is no accident that a scientific civilization which
tries not only to understand the structure of the cosmos
but also to use this knowledge for the benefit of man-
kind, has arisen among the nations trained in the Eucha-
ristic worship. It was in this unique sacrifice that
men began to see the physical universe as a friend
instead of fearing and despising it. They learned also
sacredness and dignity of every type of labor, including
manual work, which has been considered as degrading both
by the classical civilization and by the non-Christian
religions of the East.

(Zernov)

The question of the sacrifice of the Eucharist, the
pinnacle of Christian sacramentality, moves us to the Liturgy
itself. For in the Divine Liturgy or Mass the bread and wine
which are technologically processed food and drink, are changed
through a God-given power within the Christian community into
the Body and Blood of Christ. This Liturgical activity both
expresses the present bonds of unity among the People of God,
and, more importantly, it reconstitutes this People into a
more perfect people of God. Within the Liturgy itself we find
two parts: A liturgy of the Word (consisting of Scriptural
readings, credal formulae and Letters) which is analogous to
the pure scientific activity of understanding the world; we
have a Liturgy of the Eucharist which reinvigorates this
community in the task which lies ahead of it; here is some-
thing analogous to applied scientific work.

The Christian's power to transform and to hope to
continue to transform the world is grounded in the Faith
of the Christian in the Resurrection and the hope which comes
from that Faith. The sacraments and expecially the liturgy
give the energy necessary for this earthly transformation,
but it is the hope in the Resurrection which motivates one
to immediate action. In becoming another "christ" the
Christian is now able to assist in building up the world,
can fill up what is wanting in the sufferings of Christ,
and can take evolution under his own controlled hands.

41

This imperative to control the earth is not found only in the Christian Tradition or only within the New Testament. The Book of Genesis, the very first part of the Bible speaks of a subjection by man of the earth. The Genesis account of the naming of the animals is really a Hebraic way of saying that these creatures are subjected to man's control and power. Thus the change of name (e.g., Peter from Simon; Paul from Saul; the baptismal name of each Christian) is symbolic of the subjection of man to the power of God.

I would be the first to state that the view just mentioned has several theological problems.

One problem which has perhaps already come to our mind concerns whether we can relate the view that Christianity must be concerned with an abandonment of this present world in order to await the next (radical eschatology) with the view that Christianity must be totally concerned with the betterment of this present world (radical incarnationalism). The first position is so enchanted with future glory that the present world has little meaning. We have seen constant examples of this position both in the Letters to the Thessalonians and in the movement of the Egyptian hermits to the deserts. Extreme adventist groups have periodically sprung up throughout the history of Christendom. The opposite view is an excessive concern for the present moment as the necessary time for concern; the world and all in it must become the responsibility of the Christian. Perhaps the social christians of our century and some of the death-of-God theologians might be examples of this philosophy.

Teilhard de Chardin in his Future of Man seems to be addressing the Christian who seeks to resolve these two apparently contradictory positions. He speaks of a Faith in God and a Faith in the world. He says that unless religious man has a faith in the activity of man he will not be genuine; he adds that the man of science must have a faith that his work have an infinite value both temporarily and spiritually or else man will not raise a finger to work. Even if we should think this work will endure in our descendents for a million years, this is not enough to make man work. The mission of the Christian is that this work has far greater and more deeply conceived value than anything the secular man can imagine. Here is the heart of the message of the Good News, i.e., that what all mankind is doing is good.

42

But Teilhard seems in his resolution of this primary problem to erect another: God is known to direct the issue of the universe and yet man has within his power the capacity to make or destroy this world. A solution to both questions may rest in an understanding of the greatest activist of the New Testament, namely Peter. In two Peter 3:12 we find the statement:

"waiting for and hastening the coming of the day of God..."

Here man contributes to the Second Coming in his very action.

y

R

True Faith

Faith in God

o —————————————————————————— x

Faith in the World
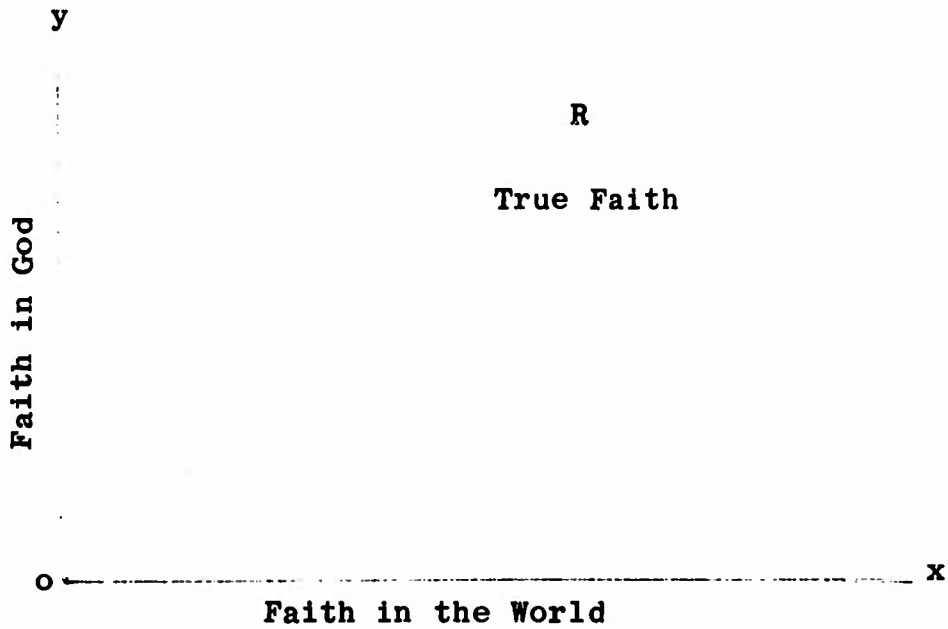
Teilhard's vector or resultant indicates the true direction of man's faith. But a resolution of vectors gives us both

*These vectors are intended to be finite expressions of man's faith in God and his universe.

43

direction and magnitude. Thus to speak of a direction esta-
blished by an all powerful God, does not say anything about
the acceleration of man within the path of that direction.
To husten a process is to accelerate that process, which
might be a God-given human function of world process.

If we do not risk pushing graphic language to an extreme
we might add that there seems to be a tendency in religious
history to establish counter positions in violent opposition
to either OY or OX. The statistical aggregate may average out
to OR without a majority of persons being consciously aware
of this fact. But the energy necessary to reestablish the
equilibrium is removed from the process of carrying the world
to its new transformation. Thus the Christian is called to
retestify to the paradox of a God-man and the dual faith in
both God and man. His need for affirming this holy impatience
is threefold:

1. The longer the time required the greater the
possibility of major imperfections arising.
2. A Christian love for our neighbor means we do
not tolerate death, disease and war remaining a
scourge on our fellow men.
3. Because we want Christ, our brother and friend
to appear in his full glory.

The acceleration of which we speak is a conscious taking
of the entirety of world process under our command, to control
the power of which we are finding within our possession, and
converting this power to useful accomplishments. The ill use
of this power might decelerate and totally stop world process
for thousands of years. For man has the power of his own
individual and a certain limited destruction. But the force
of Christian Faith includes the belief that good will ultimately
win out. It is the utterance of this confidence which is the
work which is the anti-entropy factor in world process.

Christianity is principally the announcer of the Good News,
whether this is a message of Christ's historical coming or of
the growth of technology. But Christianity fails in its analysis
if it only encourages by pointing out the good in the present
technological advances. It is a constant tradition within the
Church that the possibility of good is concomitant with that of
evil and the greater the good possible the greater the evil
(e.g., the parable of the seeds, the Pauline Letters). Thus
the growth of human power is a growth in the need for control;

44

this control means subjection of the whole cosmos to the knowledge and use of man (noetic and pragmatic control). Growth of power, whether political, military or technological, must be paralleled by growth in international political bodies, disarmament treaties and control of air, water and sound pollution. This possibility of evil is just as important a message of the Christian as the announcement of the good possibilities. However, this second message must follow psychologically after the first, especially in an age which needs hope.

The technology of warfare must evolve from the art of making swords and missiles to that of space exploration and desalinization plants. And here the nobility of your calling, of you the physical scientists working for the Armed Forces, must be testified to. No one is better qualified than you to change the concept of what weapons mean. No one can better make technology a weapon for curing disease, war and poverty.

"The last enemy to be destroyed is death" (I Cor. 15:26). When man slowly grows in the spatial consciousness of his brotherhood with all other living human beings, then in the survey of the world he will find only one thing unconquered, and that is death. He will grow in his hope to be reunited with his loved ones who have passed before him so that the community of persons might be most perfect. At this moment when he sees fully well that he has conquered war, poverty and disease and maybe even preserved from death those dying at that moment in history, he will shout in one anguished voice: Come Lord, Jesus; bring back with you those who are unable to give rebirth. Make the spatial and temporal community of the world one. Put all things under subjection to the Father.

GENERAL PINSON

Thank you very much Father Fritsch. I'm going to have to find out where Maysville, Kentucky is, add to my knowledge of geography. I hope I may be forgiven for introducing a note of levity into this serious discussion, but I'd like to take advantage of the next minute or two to tell a little story about a scientist that invented this serum that would bring inanimate things back to life. And one night in deepest secrecy he slipped out to the town park to try this serum on the statue of a Civil War general on a horse; and the scientist was very overjoyed when the general, after a quiver or two, dismounted from the horse. So the scientist said "Tell me General, what's the first thing you're going to do in this new life that you've been given"; and the General took out his pistol and said "That's easy, I'm going to kill me about a million pigeons."

45

<u>DR. FREMONT-SMITH'S TALK</u>

GENERAL PINSON

The next speaker on our program this afternoon, also a very
young man, a native of St. Augustine, Florida, and at a very
young age he defected from the South, attended school at Groton,
Harvard College, Massachusetts Institute of Technology and
Harvard Medical School. He's had a rather lengthy and considera-
ble association with the Military Service during his life: He
served during World War II on a committee on the selection and
training of aircraft pilots, and on the sub-committee on war
neurosis of the National Research Council. Following the war
he was a consultant to the Department of Defense and was a
senior monitor of the Radiological Safety Section on operation
"Crossroad" at Bikini. This was 1946 operation in the Pacific.
In the last twenty-five years Dr. Fremont-Smith's activities
have taken on more of an international character. His over-
riding interest of his professional life for many, many years
has been the promotion of communication at all levels from the
individual in family to the family of nations, in order that
misunderstanding between individuals and groups may be reduced
and the danger of friction between people, and the danger of
war between nations may be reduced.

Dr. Fremont-Smith was for many years, for twenty-four,
Medical Director of the Josiah Macy, Jr., Foundation. Since
1960 he has served as the Director of the Interdisciplinary
Conference Program of the American Institute of Biological
Sciences. Since 1963 he was the Director of Interdisciplinary
Communications Programs of the New York Academy of Sciences
and visiting professor of psychiatry at Temple University.
Since 1961 he has been a member of the board of trustees of
the Academy of Religion and Mental Health; since 1964, for
the past three years he has been acting chairman of that same
Academy.

It is my privilege and great pleasure to introduce to you,
Dr. Frank Fremont-Smith.

FRANK FREMONT-SMITH

Thank you very much, General Pinson. I hope you will
quickly get back on that horse and put the pistol away; I
don't want to be shot. But in my introduction you left out
a very crucial aspect which I think should be mentioned, and
that goes back a long way further to World War I, where I

46

joined the Naval Reserve right out of the blue as a chief
gunner's mate. Now this was a great mistake because I
couldn't be a chief, I knew nothing about guns and far too
little about mating in those days, so I had to be gradually
pushed upstairs as an ensign.

GENERAL PINSON

I know about that, but I didn't want to call attention
to it.

DR. FREMONT-SMITH

Thank you sir, thank you; you are very kind. General
Pinson, ladies and gentlemen, it is a great privilege to be
invited to take part in this symposium. Your effort here
at the Air Force Weapons Laboratory to provide an opportunity
for cross-discipline exchange of ideas in the fields of science,
philosophy and religion, and to invite the local community to
participate is a fine example of what should be a country-wide
effort in this period of breakdown in communication and need
for reappraisal.

During the past thirty years I have had the opportunity
to organize some 350 small interdisciplinary conferences,
bringing together for a two or three day conference, research
scientists in the biomedical and psychosocial fields with the
primary purpose of studying the problems of multidiscipline
communication and facilitating mutual understanding among
representatives of these branches of science. The Academy
of Religion and Mental Health, of which I am also Acting
Chairman of the Board of Trustees, I have also had an
opportunity to observe some of the obstructions to communi-
cation which arise whenever groups of different backgrounds
and training try to explore each others approaches to a
common problem.

With this background I would like to share with you some
of my experiences.

Today, with the information explosion taking place before
our eyes, with new data pouring in upon us from the many
different advancing fronts on the expanding periphery of
knowledge, it is inevitable that increasing specialization
should take place and that the gaps between the specialists
should become wider and wider.

47

A major problem confronting mankind, whether in science, philosophy or religion is to find ways of effectively bridging the gaps between specialists in order to achieve a much needed holistic view of nature, of mankind and of the spiritual aspirations which are common to all pe les and nations.

In my experience, the major problem in cor inication among scientists of different backgrounds are most frequently done to differences in basic assumptions - assumptions often unexpressed and inherent in the training and philosophy underlying the specialty involved.

In fact out of this observation, I have developed a secret weapon which I call upon when I am in danger of being worsted in an argument. I turn to my adversary and in the most polite manner say "would you mind restating your basic assumptions". This nearly always "floors" him for he usually has not stated his assumptions and may not realize how heavily he relies upon the '

The psychological obstructions to communication are often the most unimportant and may need to be dealt with before the more scientific disagreements can be successfully overcome.

Perhaps I should state some of my basic assumptions at this point.

. . Nature is all of one piece. In our conferences I often tell the group that one moonlight night nature whispered in my ear that she could not understand our universities with their many unrelated departments - obviously they had nothing to do with her.
2. The half-life of facts is getting shorter and shorter.
3. That our ignorance is more impressive than our knowledge.
4. That the exploration of our areas of ignorance will reveal surprises which will challenge some of our most cherished beliefs and attitudes.
5. That interpretation is built into our act of observation, since one can observe the new only in the light of individual past experience. Hence our observation-interpretations, are always to some degree in error, and should be examined to determine whether such error is crucial or not to the problem under consideration.

In light of these assumptions I should like to tell you of our conference procedure which has evolved over the years in the effort to facilitate communication among scientists in the biomedical and psychosocial fields.

48

We soon learned that time set aside for informal discussion among the participants at our meetings was more important than time for formal presentations, for informal "give and take" made possible the prompt correction of misunderstandings and the specification in detail of what a participant meant rather than permitting him to make an unchallenged generalization. "With respect to what" became refrain frequently used when any participant generalized.

We also found that a most valuable aspect of such discussions was interruption.

In order to provide for informal interchange we have limited the number of persons participating in a conference to 25 and have gradually reduced and finally eliminated formal presentations and replaced them by discussion in depth of the topic under consideration; such discussion being led by a "discussion leader"-more recently designated as a "discussion initiator".

May I take a few moments to contrast the "speaking at" i.e., the formal presentation, to "discussion with" which takes place in a conversation. The latter is a mutually corrective feedback system which keeps the participants on the same wavelength by virtue of the interruptions which indeed are the heart of conversation. In a speech, by contrast, the speaker has a captive audience, each of whom hears the message of the speaker differently, and sometimes very differently indeed! In a conversation prompt questions, doubts, challenges or the presentation of newly evoked ideas, are the order of the day while in listening the audience must repress any such doubts, challenges or ideas until the end of the speech, at which point they may no longer be relevant - or there may be insufficient time available.

The primary goal of our conferences has been to facilitate cross-discipline communication. We also hope to advance the field in which the topic is selected. These two goals are closely interdependent. The improvement of communication requires a topic of common interest to a group consisting of representatives of 5 to 8 disciplines.

We usually plan our conferences in series of five annual meetings focused upon a broad topic such as "Learning, Remembering and Forgetting" and within such a topic select a focus for each annual meeting. Subtopics are selected for each day or half-day of a three day meeting, with a discussion initiator selected by the chairman for each such subtopic or focus.

49

A chairman carries the responsibility for each series of five conferences. He selects the participants. The latter are divided into (a) a "core group" of about eight or ten who are invited to participate in each of the five conferences in the series, and a different group of guests for each conference in a series who complete the roster of twenty-five. This continuity is provided by the continuing "core group" and fresh blood by the guests, different for each conference.

A secondary goal is the publication of the proceedings of these conferences in order to share the interchange often exciting, and always interesting, with a wider audience. For this purpose the chairman selects a "scientific editor" for the series from among the core group.

A stenotypist takes down the conversation. Each participant has an opportunity to edit or delete what he said, but may not change the remarks of others! The scientific editor pulls the manuscript together and the edited transcript is published, hopefully but often only hopefully within a year of the date of the conference itself.

We have been able to bring to each conference a few participants from overseas, which has added greatly to the breadth of conversation at the conference and interest in the proceedings.

A most important aspect of our conference is the mood of the group. We make every effort to encourage informality and good fellowship for we have found that the psychological barriers to communication are enhanced by anxiety and hostility within a group and the prejudices and blind spots which are inevitable in multiprofessional groups are greatly reduced in a warm and friendly atmosphere.

We give emphasis to the limitations of the old "stimulus - response" view of behavior, insisting that the state of the organism is as significant in determining the response to a stimulus as the nature of the stimulus and that the same stimulus may evoke diametrically opposite responses if the state of the organism has changed. I often use pituitrin as an example. In my first year at medical school we demonstrated in the laboratory that pituitrin stimulates an increased flow of urine (diuresis) but in my third year at medical school pituitrin was used to inhibit diuresis in patients with diabetes insipidus. Further study showed that under anesthesia this drug causes diuresis, but in unanesthetized animals or man pituitrin will inhibit diuresis even when large quantities of water is taken.

50

May I close with an anecdote told at the recent White House Conference or Education. John Gardner, now Secretary of Health, Education and Welfare was chairman. He begged the conferees - all leaders in the educational community to take "big barracuda bites" of the problem of education, which was indeed in a sorry state. Unfortunately, so the story goes, the educational community were not prepared to play such an active role, and while a few vigorous interchanges did take place in the corridors, at the conference itself, it seemed that each participant continued to hit his own ball, as in a game of golf, as opposed to a game of tennis where the ball is tossed back and forth across the net. I favor mixed doubles!

GENERAL PINSON

Thank you very much, Dr. Fremont-Smith. I think you will, all of you in the audience, will certainly agree with me, that the distinguished panelists in their presentations today have laid the foundation for some most interesting and stimulating discussions on the morrow. We will meet here tomorrow morning at eight-thirty, for approximately one hour discussion between the panelist's themselves, at which time there will be a break and then at ten o'clock you will have an opportunity to meet with the panelists' individually in discussions with them.

51